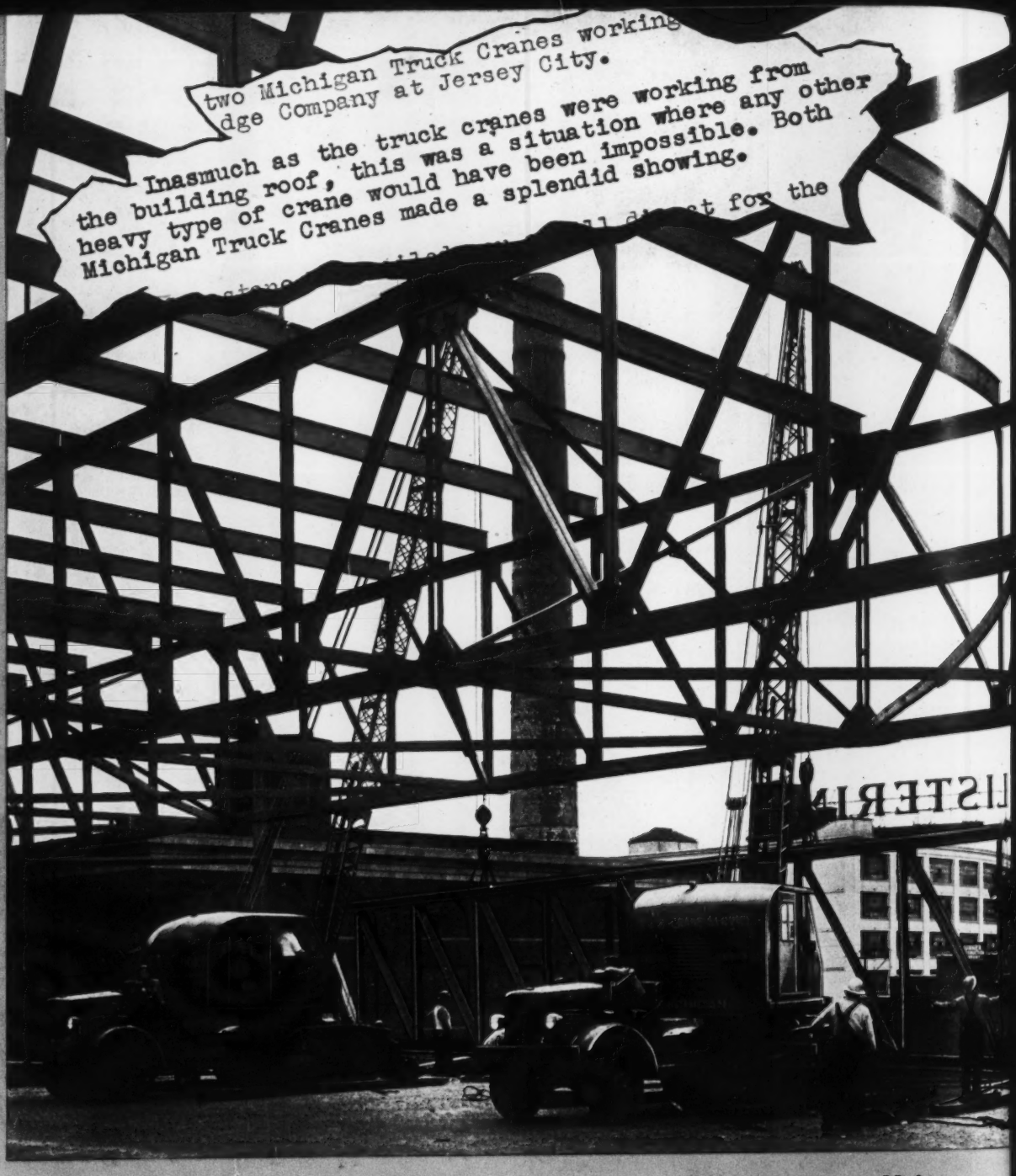
ENGINEERING NEWS-RECORD

First Tied-Arch Bridge to Span Mississippi Completed at Rock Island. *See page 3.*


two Michigan Truck Cranes working
dge Company at Jersey City.
Inasmuch as the truck cranes were working from
the building roof, this was a situation where any other
heavy type of crane would have been impossible. Both
Michigan Truck Cranes made a splendid showing.

Profits on tough jobs may be determined by such single factors as portability of equipment. Michigan Truck Cranes combine the stability and capacity of more ponderous machines with the flexibility of the modern motor truck—and they're Michigan-built from the ground up! This profitable tool for modern construction is described by word and picture in Michigan's WORK BOOK E-70—write for your copy *today!*

MICHIGAN

Truck Crane and Shovel Specialists

AIR CONTROLS

DUAL TANDEM DRIVE

FOUR WHEEL DRIVE

SINGLE AXLE

CRAWLER

MICHIGAN POWER SHOVEL CO., BENTON HARBOR, MICH., U.S.

The Week In Engineering and Construction

ENGINEERING NEWS-RECORD • JULY 11, 1940

USHA defense housing called for permanent construction

With little added cost and time structures can be built to last 20 years and so be suitable for subsidized housing after emergency

Defense housing projects built by USHA or by its local authorities are not going to be of a temporary nature. Administrator Straus and his advisors feel that with little more cost or time projects can be built to last at least 20 years and be suitable for use as subsidized public housing after the emergency is over. This applies, of course, primarily to the projects for use of workers in defense industries to be built by USHA and by local housing authorities; projects for enlisted men will be built by Army and Navy, with USHA money, and policy will be set by the military.

The industrial projects are to be so located that they will not be tied too closely to a particular plant; if a plant is away from the center of a community, it is thought better to place the project near the community, for the sake of the future, and let the workers travel to their jobs.

Because of the relatively high income levels of workers in the defense industries, it is thought that most of the projects will require little or no subsidy—the rents being high enough to carry the projects. It would be legally possible, therefore, to use the $180,000,000 of borrowing power which USHA has not used in the past because it had no corresponding subsidy money. The authority, however, would like to see each project set up with arrangements all made for its eventual conversion to a subsidized basis, and in any case is anxious to have Congress provide additional subsidy money. For the present, therefore, the only money being used is money obtained by cancelling outstanding earmarkings.

Projects strictly for defense purposes already approved include the following: Beaver County, Pa., $2,100,000; Chester, Pa., $1,000,000; Erie, Pa., $900,000; McKeesport, Pa., $1,100,000; Pittsburgh, Pa., $3,400,000; Newport, R. I., $1,000,000; Corpus Christi, Texas, $1,000,000; Portsmouth, Va., $3,000,000.

Although the projects will be of permanent construction, steps are being taken so to speed up the work that projects can be occupied four to eight months after projects are approved. Local authorities have been instructed to choose materials with an eye to speedy construction and to build on vacant sites to save the time required for demolition. The defense housing law permits use of the speedy federal form of land condemnation (in which land is occupied before the courts set a price on it) rather than more cumbersome local laws. USHA will appoint an "expediter" for each defense project with authority to make decisions.

For the present the lump-sum competitive contracts will be adhered to, but government lawyers are now studying the legal possibility of competitive fee contracts, and if delays are encountered, legislation might be asked permitting negotiated contracts.

Engineers who are constructing new Panama locks

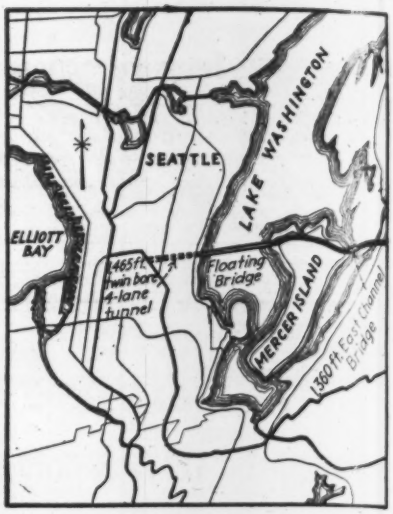
The group of Panama Canal officials and employees present July 1 to witness the work of the Dredge Cascadas taking the first load of earth from the approach channel to the third set of locks being built for the Panama Canal included the following (left to right) engineers: Leonard Foote, assistant superintendent of the dredging division; John G. Claybourn, superintendent of the dredging division; Maj. Hans Kramer, assistant to Lieut. Col. T. B. Larkin, who is in charge of construction of the new locks; Col. Larkin; Lieut. Col. D. L. Weart, assistant engineer of maintenance; Col. G. L. Edgerton, newly appointed governor of the Panama Canal Zone; Capt. C. H. Barth, Jr., assistant to Col. Larkin; E. Sydney Randolph, designing engineer for the Panama Canal, and Foster H. Spier, the only man now in the Canal service who was employed by the Isthmian Canal Commission in 1904, the year the U. S. government began work on the Panama Canal.

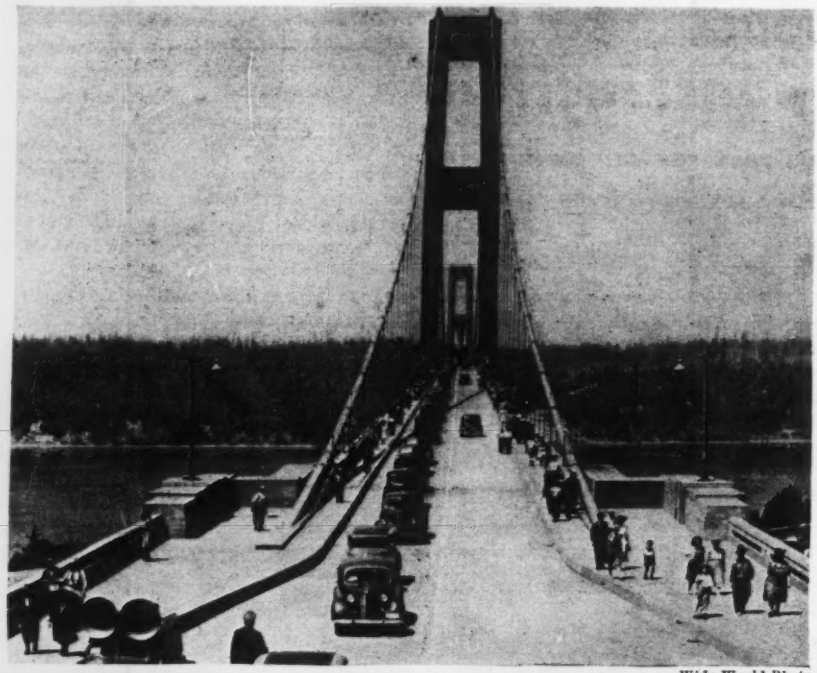
Col. Edgerton, who several years ago served as engineer of maintenance in the Canal Zone, has been with the U. S. Engineers 36 years. He is a graduate of Kansas State Agricultural College and West Point. He succeeds Brig. Gen. Clarence S. Ridley, who resigned after nearly 11 years of service with the canal.

Construction of the third set of locks is estimated to cost $227,000,000. The new locks will be constructed at some distance from the present ones to afford additional safety and to provide flexibility of operation.

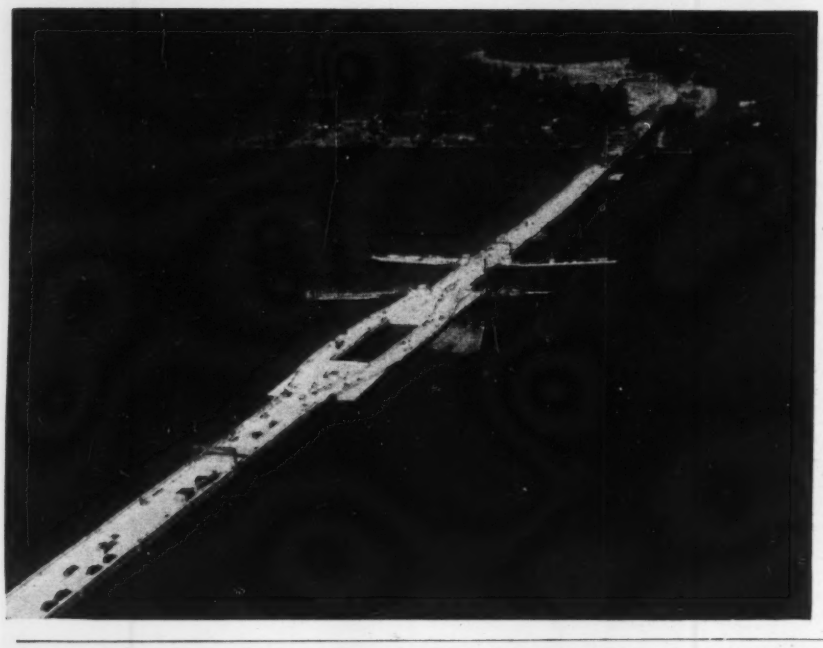
Pacific Northwest bridges completed

Last week two important bridges in the Pacific Northwest, the $7,000,000 suspension span across the Narrows at Tacoma, shown immediately below and the $9,000,000 Lake Washington crossing at Seattle (at the bottom of the page), were dedicated and opened to traffic. At the upper right is a map showing the location of the Lake Washington crossing. An outstanding element of this project is the 6,561 ft. floating portion of the bridge, made up of hollow concrete box pontoons, which accommodate a 45 ft. roadway to permit two lanes of traffic each way. Most unusual feature is the 378 ft. sliding or telescoping section by which it is possible to provide a 202-ft. passageway for boats. Total length of the Lake Washington crossing is 7,721 ft., and as part of the approach work it was necessary to construct a 1,465 ft. tunnel under Mount Baker Ridge at the Seattle end, a highway across Mercer Island, a 1,360-ft. East Channel span, and a new highway across Mercer Slough. The bridge will save 14 miles of driving between Seattle and eastern points.





Wide World Photo



Outstanding feature of the suspension bridge across Puget Sound is its narrow roadway, but 24 ft. wide, to provide for two sidewalks and two lanes of traffic, one in each direction. Its 2,800-ft. main span is the third longest in the world, being exceeded only by those of the Golden Gate and George Washington bridges.

Both the Lake Washington and Narrows bridges were constructed by the Washington Toll Bridge Authority. On the Lake Washington structure work was divided into 11 contracts with the individual contractors as follows: Northwestern Construction Co.; Bates & Rogers Construction Corp.; General Construction Co.; Columbia Construction Co.; Puget Sound Bridge & Dredging Co.; J. H. Pomeroy; Puget Construction Co.; Fiorito Bros.; Dolly Construction Co.; N. Fiorito; and Rumsey & Co. R. M. Murray is bridge engineer for the toll bridge authority on this project, G. A. Gregory project engineer and L. R. Durkee resident inspector for the PWA.

The contract for the Narrows work was held jointly by Pacific Bridge Co., General Construction Co., and Columbia Construction Co. Clark H. Eldridge was bridge engineer for the Washington Toll Bridge Authority on the Narrows work and David Glenn resident engineer for the PWA. Ralph Keenan was manager for the contractors and Theodore N. Kuss chief designing engineer.

Designs for the two bridges were selected by a board of consulting engineers including L. V. Murrow, director of the Washington State Highway Department and chief engineer for the Authority. Charles E. Andrew, R. B. McMinn, Luther E. Gregory and R. H. Thomson. Leon S. Moisseiff, New York, was consulting engineer on the Tacoma bridge.

Engineering News-Record is published every Thursday by McGraw-Hill Publishing Company, Inc., at 99-129 North Broadway, Albany, N. Y. Editorial and business offices 330 West 42nd St., New York, N. Y. Subscription, domestic, Canada, Mexico, Central and South American countries $5 for one year, $8 for two years, $10 for three years, Great Britain and British Possessions 54 shillings for one year, 108 shillings for three years. All other countries $9 for one year, $18 for three years. Entered as second class matter October 29, 1936, at the Post Office at Albany, N. Y., under the act of March 3, 1879. Printed in U. S. A. Cable address "McGrawhill New York." Member A.B.P. Member A.B.C.

Six-year plan for federal construction jobs now mandatory

National Resources Planning Board, working with the Bureau of the Budget, gets practical connection with federal program, in new set up

Federal construction agencies, hereafter, when they draw up their annual programs of work for presentation to Congress must be prepared to justify their proposals by showing how they fit into a long range plan of construction. Under an executive order issued last week, each agency concerned with construction must prepare and keep up to date a six-year program of the public works it plans to undertake, and must show, for each of the six years, the relative priorities of the projects assigned to that year.

Each year, when the budget for the following fiscal year is prepared, these various six-year plans will be drawn together by the National Resources Planning Board, working with the Bureau of the Budget, and a six-year plan of federal public works will be prepared—the first year of the plan being the coming fiscal year. The plan so prepared will be submitted to Congress along with the federal budget. This method of operating will go into effect next September when work starts on preparation of the budget for fiscal 1942.

Thus for the first time future planning of public works, long a pet idea of the administration, is made an integral part of the legislative cycle. Also for the first time NRPB is given a practical rather than academic connection with the conduct of the government.

As another aspect of the plan, construction agencies will be required to notify NRPB whenever they undertake the study of any proposed project and must notify the board of the results of the study. Before a report can be made to Congress on any project, it will have to be submitted to the board so that the report can contain a statement as to how the project fits into the government's six-year plan.

Construction agencies, for the purpose of this plan, are taken to include all agencies, including public corporations, which "plan, initiate, undertake, or engage in construction financed in whole or in part by the federal government." Agencies which aid construction through loans, grants, or other financial assistance are not required to draw up formal six-year plans, but must provide NRPB with any information it asks as to their programs.

Photo by Ralph Stanley

First tied-arch bridge to span Mississippi completed

Including five steel tied-arch spans varying in length from 395 to 540 ft.—the first spans of this type ever to be built across the Mississippi River—the Rock Island, Ill. Centennial Bridge (formerly Galbraith Bridge) was dedicated and placed in service July 12 as part of a three-day celebration. Besides the five arch spans, the structure includes a 1,075-ft. approach on the Davenport, Ia. side and a 511-ft. approach at the Rock Island end to make the overall length 4,447 ft. The bridge deck accommodates two 22-ft. roadways separated by a 2½ ft. steel center island, while a 5-ft. sidewalk is bracketed out at either side.

Built at a total cost of $2,500,000 by the City of Rock Island the bridge's revenue bonds will be retired by a 10-cent toll. The structure was designed and its construction supervised by Ash, Howard, Needles & Tammen, consulting engineers of Kansas City, Mo. with R. N. Bergendoff of that firm directing operations. William Schmidt was resident engineer for the consultants and Stephen Collins assistant. Fred L. Ashton, chief designer, and Carl F. Harper, chief draftsmen, were in charge of design. The McCarthy Improvement Co., Davenport, Iowa, was the foundation contractor and the American Bridge Co. did the superstructure work, excepting the concrete deck work which was done by Crouse & Saunders, Detroit. Construction details are given in the March 14, 1940 issue of ENR, p. 366.

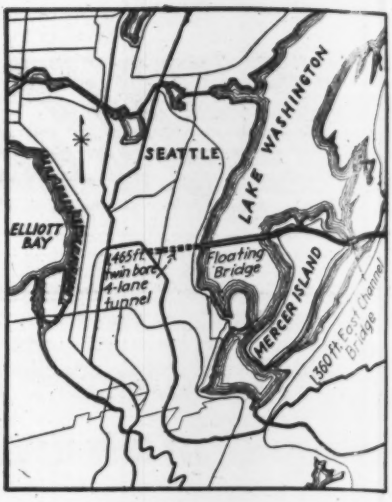
WASHINGTON HIGHLIGHTS

MERITS OF the upper Columbia valley, in the region of Grand Coulee, as a site for defense industries are being urged privately by officials of the Bureau of Reclamation. It is pointed out that the three 85,000-kw. generators due to come into service at Grand Coulee late in 1941 constitute one of the largest unspoken-for blocks of power in the country. The dam itself is 400 miles from the coast over the mountains or 800 miles by way of the valley. Spokane, where industries would most likely be located is even farther.

ALTHOUGH CONGRESS has removed the time limit from PWA projects undertaken under the 1938 program (*ENR*, June 27, 1940, p. 932), there is at least academic interest in the extent to which the goal of completion by July 1, 1940 was attained. The 1938 program covered 6,156 projects with a total cost, including sponsors contributions of $1,446,017,000. On July 1, 300 projects, or 4.9 per cent of the program, were incomplete. However, these 300 were the biggest projects, and their total cost, $637,769,000, is 44.1 per cent of the program. Cost of actual work still to be done is $169,300,000 or 11.7 per cent of the cost of the program. In terms of work done, therefore, 88.3 per cent completion of the 1938 program was achieved by the deadline.

Pacific Northwest bridges completed

Last week two important bridges in the Pacific Northwest, the $7,000,000 suspension span across the Narrows at Tacoma, shown immediately below and the $9,000,000 Lake Washington crossing at Seattle (at the bottom of the page), were dedicated and opened to traffic. At the upper right is a map showing the location of the Lake Washington crossing. An outstanding element of this project is the 6,561 ft. floating portion of the bridge, made up of hollow concrete box pontoons, which accommodate a 45 ft. roadway to permit two lanes of traffic each way. Most unusual feature is the 378 ft. sliding or telescoping section by which it is possible to provide a 202-ft. passageway for boats. Total length of the Lake Washington crossing is 7,721 ft., and as part of the approach work it was necessary to construct a 1,465 ft. tunnel under Mount Baker Ridge at the Seattle end, a highway across Mercer Island, a 1,360-ft. East Channel span, and a new highway across Mercer Slough. The bridge will save 14 miles of driving between Seattle and eastern points.



Wide World Photo

Outstanding feature of the suspension bridge across Puget Sound is its narrow roadway, but 24 ft. wide, to provide for two sidewalks and two lanes of traffic, one in each direction. Its 2,800-ft. main span is the third longest in the world, being exceeded only by those of the Golden Gate and George Washington bridges.

Both the Lake Washington and Narrows bridges were constructed by the Washington Toll Bridge Authority. On the Lake Washington structure work was divided into 11 contracts with the individual contractors as follows: Northwestern Construction Co.; Bates & Rogers Construction Corp.; General Construction Co.; Columbia Construction Co.; Puget Sound Bridge & Dredging Co.; J. H. Pomeroy; Puget Construction Co.;

Engineering News-Record is published every Thursday by McGraw-Hill 330 West 42nd St., New York, N. Y. Subscription, domestic, Canada, years, Great Britain and British Possessions 54 shillings for one year, second class matter October 29, 1936, at the Post Office at Albany, N. Member A.B.P. Member A.B.C.

TIGH

BOU

Six-year plan for federal construction jobs now mandatory

National Resources Planning Board, working with the Bureau of the Budget, gets practical connection with federal program, in new set up

Federal construction agencies, hereafter, when they draw up their annual programs of work for presentation to Congress must be prepared to justify their proposals by showing how they fit into a long range plan of construction. Under an executive order issued last week, each agency concerned with construction must prepare and keep up to date a six-year program of the public works it plans to undertake, and must show, for each of the six years, the relative priorities of the projects assigned to that year.

Each year, when the budget for the following fiscal year is prepared, these various six-year plans will be drawn together by the National Resources Planning Board, working with the Bureau of the Budget, and a six-year plan of federal public works will be prepared—the first year of the plan being the coming fiscal year. The plan so prepared will be submitted to Congress along with the federal budget. This method of operating will go into effect next September when work starts on preparation of the budget for fiscal 1942.

Thus for the first time future planning of public works, long a pet idea of the administration, is made an integral part of the legislative cycle. Also for the first time NRPB is given a practical rather than academic connection with the conduct of the government.

As another aspect of the plan, construction agencies will be required to notify NRPB whenever they undertake the study of any proposed project and must notify the board of the results of the study. Before a report can be made to Congress on any project, it will have to be submitted to the board so that the report can contain a statement as to how the project fits into the government's six-year plan.

Construction agencies, for the purpose of this plan, are taken to include all agencies, including public corporations, which "plan, initiate, undertake, or engage in construction financed in whole or in part by the federal government." Agencies which aid construction through loans, grants, or other financial assistance are not required to draw up formal six-year plans, but must provide NRPB with any information it asks as to their programs.

anley

WASHINGTON HIGHLIGHTS

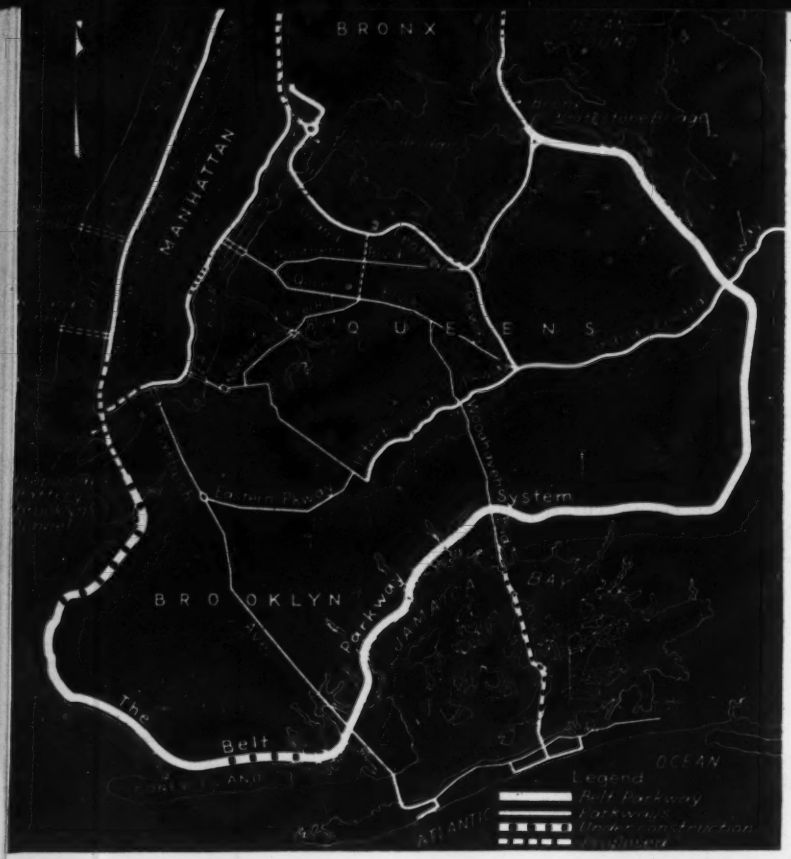
MERITS OF the upper Columbia valley, in the region of Grand Coulee, as a site for defense industries are being urged privately by officials of the Bureau of Reclamation. It is pointed out that the three 85,000-kw. generators due to come into service at Grand Coulee late in 1941 constitute one of the largest unspoken-for blocks of power in the country. The dam itself is 400 miles from the coast over the mountains or 800 miles by way of the valley. Spokane, where industries would most likely be located is even farther.

ALTHOUGH CONGRESS has removed the time limit from PWA projects undertaken under the 1938 program (*ENR*, June 27, 1940, p. 932), there is at least academic interest in the extent to which the goal of completion by July 1, 1940 was attained. The 1938 program covered 6,156 projects with a total cost, including sponsors contributions of $1,446,017,000. On July 1, 300 projects, or 4.9 per cent of the program, were incomplete. However, these 300 were the biggest projects, and their total cost, $637,769,000, is 44.1 per cent of the program. Cost of actual work still to be done is $169,300,000 or 11.7 per cent of the cost of the program. In terms of work done, therefore, 88.3 per cent completion of the 1938 program was achieved by the deadline.

33-Mile Belt Parkwa

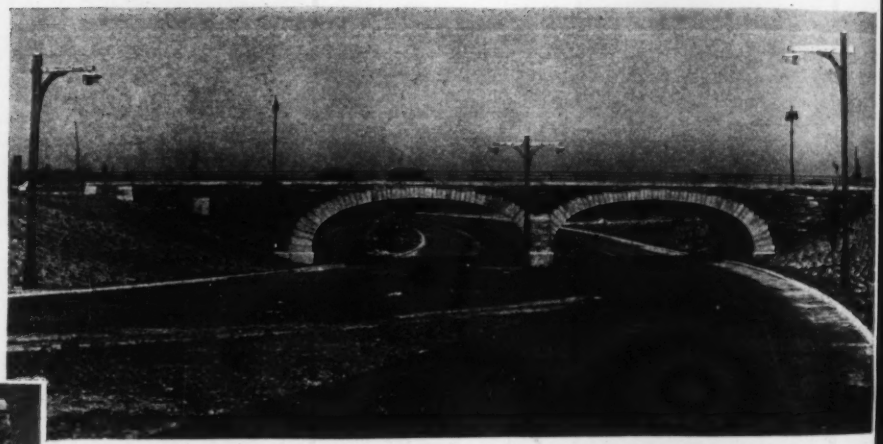
ALTHOUGH the first of 100 construction contracts for New York's Belt Parkway was not awarded until Nov. 16, 1938, the 33-mile thoroughfare was opened to traffic June 29, 1940, or about nineteen months after construction had been started. The $29,900,000 project included placing 16,600,000 cu.yd. of fill; paving 1,500,000 sq.yd.; and constructing 47 bridges to eliminate highway intersections, 5 bridges to avoid railroad grade crossings, a 2,740-ft. viaduct at Coney Island over the tracks of the B.M.T. subway, 6 bridges to carry the parkway over waterways, and 6 pedestrian overpasses. In the parkway's entire length there is not a single grade crossing, except along the temporary connection near Sheepshead Bay at Coney Island.

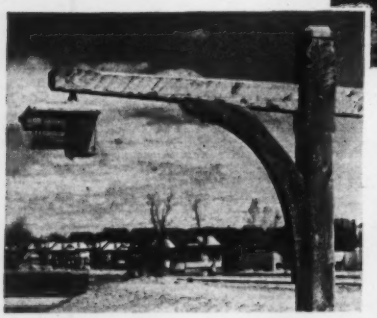
Extending from Owl's Head Park in Brooklyn to the Bronx-Whitestone Bridge across the East River in northern Queens, the toll-free parkway includes 31 miles of new construction and traverses 2 miles of the previously constructed Laurelton and Shore parkways. Now accommodating, for the greater part of its length, four lanes of traffic, two each way on two 23-ft. divided concrete slabs, and six lanes on two 34-ft. slabs for the remaining few



BELT PARKWAY *becomes an important route in New York's express highway network.*

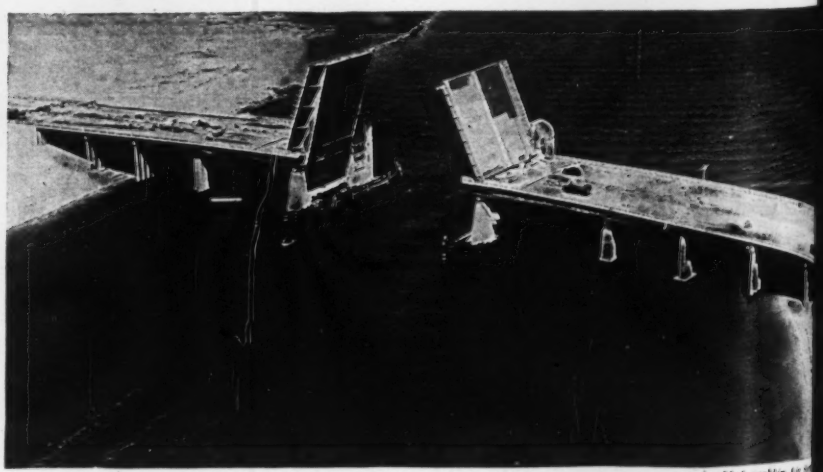
BRIDGES *are of four types: steel beam and girder construction, steel rigid frame, concrete frame, and concrete arch. At right is the Hillside Ave. concrete arch.*





ONE *of the 2,300 sodium vapor lights that illuminates the parkway throughout its entire length.*

MILL BASIN BRIDGE, *a bascule with a 131-ft. span and only movable bridge required, is located a short distance northeast of where the parkway crosses Flatbush Ave.*



McLaughlin Ar

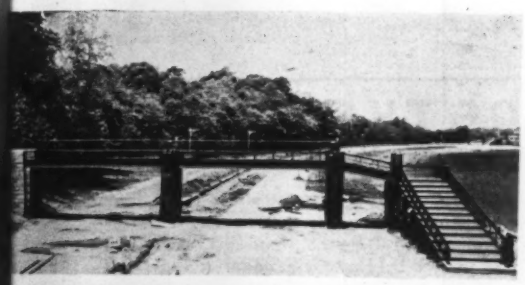
ilt in 19 Months

niles, plans provide for future widening to six lanes throughout. This may be done without alteration of present entrances and exits and without replacement of ny bridges. The Triborough Bridge Authority has construction under way north of the Bronx-Whitestone Bridge o link the new parkway with Hutchinson River Parkway, nd work is soon to start on the Battery-Brooklyn Tunnel o join the thoroughfare with the West Side Highway and he East River Drive. As part of this latter project the Triborough Bridge Authority has begun work on a 14,000,000 elevated thoroughfare to continue the Belt Parkway from Owl's Head Park to Henry St. and Hamilton Ave., or the site of the Brooklyn plaza for the tunnel.

The Belt Parkway was built by the Department of Parks of the city of New York with the New York State Department of Public Works, Long Island State Park Commission, and Madigan-Hyland, Waddell & Hardesty, Robinson & Steinman, and Aymar Embury, II, all of New York, acting as consultants and supervising construction. To aid in financing the work the federal government supplied $12,000,000, the city supplying the remaining $17,900,000.

McLaughlin Air Service Photo

THROUGH WHITESTONE *approaching the Bronx-Whitestone Bridge, the parkway is depressed.*

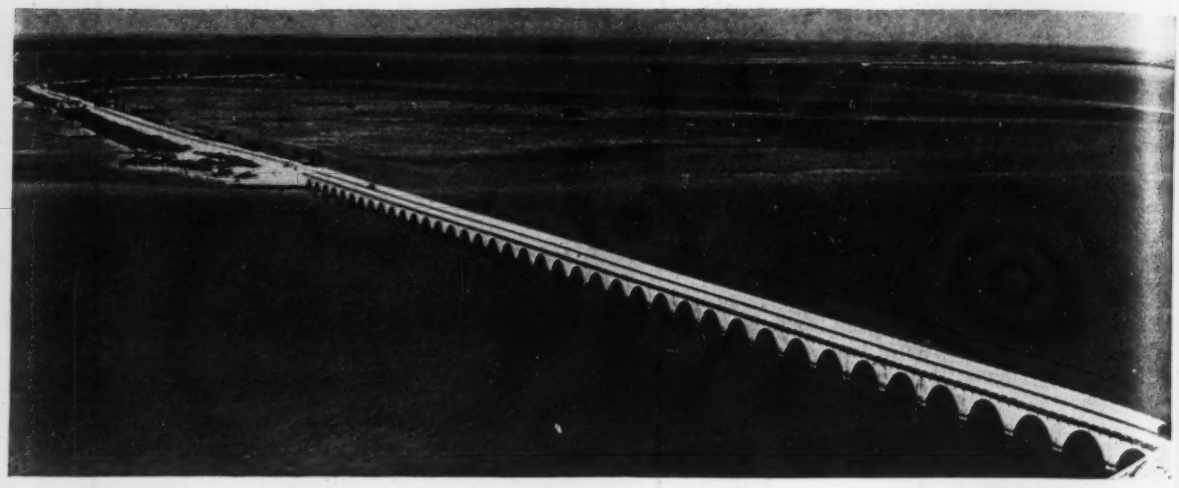


HIS PEDESTRIAN OVERPASS *at Crocheron Park is one of x such structures required.*

Fairchild Aerial Survey Photo

THREE-LEVEL BRIDGE *constructed at the approach to Bronx-Whitestone Bridge.*

BELT PARKWAY *(leaving picture at upper left) passes under Grand Central Parkway.*



Overseas road to Key West paying its way

Tolls paid on the Overseas Highway, which extends from the mainland of the lower tip of the Florida peninsula, 90 miles offshore, across a series of islands and waterways to Key West in the open ocean, were sufficient during the twenty-two months, ending May 31, to permit payment of interest and amortization charges, after meeting all operating expenses, according to B. M. Duncan, general manager and chief engineer of the Overseas Road and Toll Bridge District. Present indications are that the undertaking will be a financial success, despite the peculiar limiting conditions surrounding its operation. (*ENR*, Sept. 2, 1937, p. 388). Tourist traffic has been a large part of the total volume handled.

About 40 miles of the Overseas Highway has been completed to replace two ferries that provided very uncertain and inadequate service following the abandonment of the extension of the Florida East Coast Railroad to Key West after the hurricane of September, 1935, had extensively damaged its roadway. Based on the financial results to date, and on the fact that Key West is of unusual strategic importance during a national emergency, the indications are the present temporary highway from the outer end of the completed section will be replaced by the same type of permanent construction already in service.

State legislation created a separate tax district on which the financing of the project was based. The entire $3,600,000 required to complete the undertaking was secured from an issue of 4 per cent bonds. Neither Florida nor the federal government made a grant to the undertaking. On the other hand it should be pointed out that the abandoned grade and structure of the Florida East Coast Ry., upon which the road is built and which cost many millions of dollars was acquired for only $600,000.

The first annual installment on the principal of the bonds, amounting to $70,000, will be met out of earnings on Sept. 1 after interest payments have been paid. Annual retirement of principal will be the same amount for the next two years, after which the amount increases yearly to a maximum of $200,000 in 27 years.

Tourist traffic is the heaviest from December to March, inclusive, with a monthly maximum of $39,979 received in tolls last February from all traffic. Minimum travel occurs during September and October, the threat of tropical storms keeping all except necessary traffic away at that season. Park sites, camps and other attractions are being developed along the highway, and improvements in Key West are expected to increase tourist travel extensively during the next few years.

JOBS OF THE WEEK

HYDRO ELECTRIC PLANTS, Jackson County, North Carolina.

Morrison-Knudsen Co., Boise, Idaho awarded contract for Glenville hydro-electric project and Utah Construction Co., San Francisco, Calif. for Nantahala hydro-electric project by Nantahala Power & Light Co., Franklin, N. C., a subsidiary of the Aluminum Company of America. Estimated cost $10,000,000 to $15,000,000. Both plants are on tributaries of the Little Tennessee River, and will have the highest heads of any such projects east of the Rocky Mountains. The plants were described in *ENR* June 13, 1940, p. 833.

DOCKS, Norfolk, Va. and Philadelphia, Pa.

Spencer, White & Prentis, Inc., New York, Foley Brothers, Pleasantville, N. Y. and Merritt-Chapman & Scott Corp., New York, received contract on cost-plus-fee basis for shipbuilding dry docks at Norfolk, Va. and Philadelphia, Pa. Estimated cost $16,175,000.

GAS TRANSMISSION LINE, Montana.

W. A. Bechtel Company, San Francisco, will construct 120-mi. 8-in. welded and Dresser coupled line, passing through Wolf Point, Mont. From Wolf Point a 3½-in. line will be built to Poplar, Mont. for Montana-Dakota Utilities Company, Minneapolis, Minn. Estimated cost $1,000,000. Al. Berlander, superintendent, will be in charge of construction.

WATER PIPELINE, Los Angeles, Calif.

United Concrete Pipe Corp., Los Angeles, awarded $514,940 contract to construct 6-mi. precast pipeline from Burbank, Calif., to north portal Hollywood Tunnel; Artukovich Bros., Hynes, Calif., awarded $760,807 contract to build 10-mi. cast iron pipeline from south portal of Hollywood Tunnel to Beverly Hills and Santa Monica, Calif. Metropolitan Water District, Los Angeles, owners.

APARTMENT HOUSES, Jacksonville Airbases.

T. A. Loving & Co., Goldsboro, N. C. will construct apartment houses for bachelor officers and administration buildings at Black and Piney Point Air stations for Navy Department, $767,500.

NOTE—Additional bidding and contract news on over 600 projects, large and small, appears in the Construction News Section beginning on page 14.

Kansas City posts go to Everham and King

Now that Kansas City, Mo., has completed the clean-up of the political debris left by the collapse of the Pendergast administration, attention is being turned to reorganizing the engineering personnel upon which much of the future progress of the new reform administration rests. To the two most important posts—director

Thulane Photo

Arthur C. Everham

of public works and director of the water department—come engineers of high reputation and recognized accomplishment, Arthur C. Everham and Kenneth K. King.

Arthur Everham brings to his public works job 40 years of experience in the construction industry. Following graduation from the University of Cincinnati in 1902, Everham spent the next three years as assistant engineer with the Big Four and Michigan Central railroads. The next five years were spent as assistant engineer on construction of the New York Central tunnel under the Detroit River. Following one year as resident engineer with the B.&O. R.R., Everham was employed on the construction of Kansas City's $42,000,000 union railroad terminal. On this work he had full charge of all construction and design, except the design of the Union Station building itself. In November 1916 Everham joined the Union Pacific R.R. as its terminal engineer at Kansas City to have charge of construction of the St. Joseph Bridge across the Missouri River. In 1918 he was commissioned a major in the U. S. Army and acted as assistant supervisor for the construction of the Norfolk Terminal, Charleston Terminal, and the Newport News cantonment work. Before assuming his recent job as senior partner of the Everham Foundation Co., Everham was employed as western representative of the Raymond Concrete Pile Co. of New York, and as vice-president and general manager of the Raymond Concrete Pile Co. of California.

King, who received his education at the University of Missouri, has during recent years been employed as principal sanitary engineer with the Farm Security Administration of the Department of Agriculture. King spent 12 years with Fuller & McClintock, consulting engineers, and from 1923 to 1928 was in charge of a large part of the construction of Kansas City's $11,000,000 waterworks development. He has also supervised construction of waterworks projects at Memphis, Tenn., Wilmington, Del., and New York City. He entered the United States Public Health Service in 1934, leaving five months later to join the Farm Security Administration.

Everham is succeeding Ralph E. Cameron, King succeeding Loy E. Sneary, who has been head of the water department since February.

• • •

Hetch Hetchy water litigation gets 15-year truce

A pact has been signed by San Francisco on one side and by the Turlock and Modesto Irrigation Districts on the other, agreeing that for a 15-yr. period none of the signatories will go to court to settle any disputed riparian issue concerning Tuolumne River water. This agreement closes many years of litigation and threatened litigation concerning the use of water in the Hetch Hetchy development that supplies the city of San Francisco.

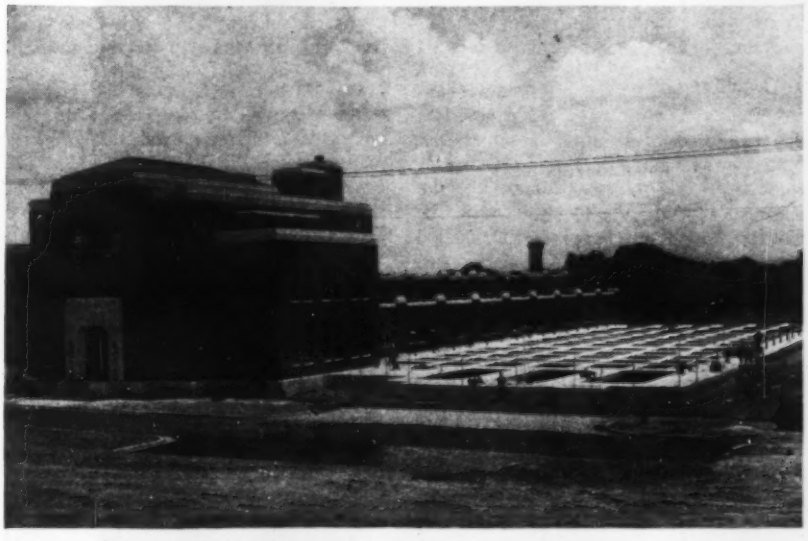
• • •

Water supply sabotage under study

What cities can do to safeguard their water supplies from sabotage is the subject of a special report just completed by the editors of *Engineering News-Record*. Using a canvass of key industrial centers from coast to coast as a basis of information, a list of 25 precautionary measures have been drafted.

"Sabotage of water supply as a means of paralyzing industrial production is no myth," says the report, "and the public press has already carried accounts of such activities." It is pointed out that mobilization of industry for defense puts a grave responsibility on municipal water officials.

The complete report will be published in next week's issue of *Engineering News Record*.



Raleigh's new water plant named for veteran engineer

A new water plant dedicated at Raleigh, N. C. June 18, has been named the Ernest B. Bain waterworks in honor of Ernest B. Bain, engineer and superintendent connected with Raleigh's water system since 1899. Made possible through a $385,000 bond issue and a $315,000 PWA grant, the new plant has a normal capacity of 8,000,000 gpd, but it facilities are taxed to the limit it may deliver 10,000,000 gpd. Construction of added units would bring the capacity to 20,000,000 gal.

W. C. Olsen, consulting engineer of Raleigh, in introducing the speakers at the ceremonies praised the efforts of Roy L. Williamson, commissioner of public works at Raleigh and secretary of the North Carolina Society of Engineers, for his efforts in obtaining the new plant.

A. H. Guion & Co., Charlotte, N. C., were the general contractors for the work. W. W. Chaffin acted as resident engineer inspector for the PWA.

MEN AND JOBS

H. C. HUNTER, who as western division erecting manager of the American Bridge Co., Pittsburgh, supervised the building of the San Francisco-Oakland Bay Bridge, is assistant to the vice president of that firm and stationed at Chicago. It was erroneously reported in these pages June 13 that Hunter, a graduate of Iowa State College in 1913, had been made vice president of the American Bridge Co.

HERBERT ROSS MACCLYMONT, a consulting engineer of Toronto, Ont., has been appointed engineer-manager of the York Township Hydro Electric System. MacClymont, a graduate of Glasgow University, has been in consulting work for the past 25 years.

AMBROSE HARWELL, Columbia, S. C. has opened contracting offices in Columbia, S. C. to specialize in highway surfacing. Harwell was formerly with the Hardaway Construction Co.

C. C. WHITE, former assistant maintenance engineer at Little Rock for the Arkansas State Highway Commission, has been transferred to Camden, Ark., as engineer for the seventh district of the department. He succeeds WEBSTER TURNER, who was transferred to the construction department at Little Rock.

ARTHUR F. PERRY, JR., engaged in construction business in Florida since 1921, has accepted active duty with the United States Navy with the rank of lieutenant commander. He has been attached to the engineering staff of COMDR. PAUL H. COTTER, who is in charge of $30,000,000 of work as part of the Southeastern naval air base project in Duval, Brevard and Dade counties, Florida. Perry, a graduate of Cornell University, served overseas with the 64th Coast Artillery and has been a reserve officer of the Navy engineering corps for the last year.

SINCLAIR O. HARPER, assistant chief engineer of the Bureau of Reclamation, has been designated acting chief engineer to take over the duties of the late RAYMOND F. WALTER, who died last week in Fresno, Calif. (*ENR* July 4, 1940, page 5.)

THEODORE BEEGLE, engineer of Meigs County, Ohio, has resigned to become assistant engineer with the Ohio State Highway Department. Beegle was serving his second term as county engineer.

CAPT. GARRISON H. DAVIDSON, graduate of West Point, has been detailed by the U. S. Engineer Corps to enter the college of engineering at Cornell University for advance study. Capt. Davidson in 1927 was stationed at Fort Du Pont, Del., but returned to West Point for the fall seasons of 1927, 1928, 1929 and 1930 for duty as assistant football coach. From 1933 to 1937 he served as head coach of the army team.

COL. EDWARD D. RICH, since 1913 director of the bureau of engineering of the Michigan Department of Health, has retired from that position but will continue as assistant engineer with the bureau. JOHN M. HEPLER, associate director of the bureau, will succeed Rich. Rich, a former professor of civil engineering at the University of Michigan, has supervised many water supply and sewage disposal projects in Michigan during his 27 years as head of the bureau.

ROBERT C. DEHART, during the past month employed as draftsman by the Wyoming State Highway Department, has begun new duties as field inspector with the Standard Oil Co. of Indiana. DeHart, a graduate of the University of Wyoming with a civil engineering degree in 1938, spent two years at Armour Institute of Technology in order to obtain a master's degree in civil engineering from that school early last month.

MAJ. DANIEL NOCE, district engineer of the Memphis district, U. S. Engineers, has been promoted from the rank of major to lieutenant colonel. Lieut. Col. Noce before going to Memphis three years ago, was stationed at the Army War College at Washington, D. C.

J. H. BLACK, Yankton, S. D., has begun new duties as highway superintendent of Clay County, S. D. He succeeds L. H. DOSCHER, who resigned after two years as highway superintendent to enter the contracting business. Black, who served 14 years with the state of South Dakota as highway engineer, was formerly stationed at Mitchell.

J. C. ROBBERS has begun new duties as assistant maintenance engineer with the Minnesota State Highway Department, St. Paul. He replaces DAVE GILCHRIST who has taken a leave of absence. C. C. COLWELL has taken over Robbers' old duties at St. Paul as district engineer for District No. 6. E. J. MCCUBREY replaces Colwell as office engineer and H. N. GAGE replaces McCubrey as engineer of railroad negotiations.

JOHN P. HOGAN, president of the American Society of Civil Engineers and former chief engineer and director of construction of the New York World's Fair, last month received an honorary engineering doctor's degree from New York University. Hogan is now associated as partner in the engineering firm of Parsons, Klapp, Brinckerhoff & Douglas, New York City.

WILLIAM ANDERSON HAMILTON, JR., has joined the engineering staff of the Texas State Highway Department. Hamilton, who has a civil engineering degree from Texas A. & M. College, will be located in Lufkin.

ARTHUR B. GALLION, project planning officer of the San Francisco regional office of the U. S. Housing Authority, recently went to Hawaii to assist the officials of the Hawaii Housing Authority in two of their three current projects.

E. W. WATKINS, of Palatka, Fla., has been appointed a member of the Florida State Board of Engineering Examiners to succeed EDMUND FRIEDMAN.

FRANK E. ROSS, construction engineer employed on the Los Angeles federal jail and terminal annex post office, has been assigned to supervise the architectural work on the $10,000,000 Washington, D. C. National Airport.

MAJ. A. S. MACDONALD, of Moncton, N. B. and in charge of engineering on the aviation program in the maritime provinces for the Canadian national government, has completed a preliminary survey of land at Amherst, N. S. for establishment of an airport in that city.

WILLIAM A. BLANCHETTE, highway engineer with the Public Roads Administration since 1922 and an attorney at law, has been admitted to the bar of the District Court of the United States and to the bar of the United States Court of Appeals for the District of Columbia.

W. B. STEVENSON, of Superior, Wis. and formerly state field engineer of the WPA in Wisconsin, has been appointed acting manager of the WPA District No. 2 office in Wisconsin with headquarters at Green Bay.

JOHN GJELHANG has begun new duties as highway engineer of Lake of the Woods County, Minn., with headquarters at Baudette. He succeeds V. E. CRABTREE, who recently was named engineer of Koochiching County, Minn., with headquarters at International Falls. Crabtree succeeded M. V. CURRAN.

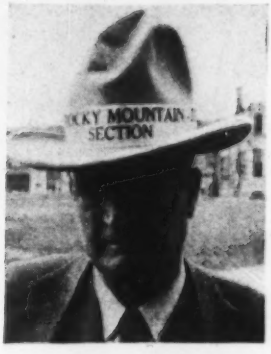
JOHN R. BAKER, of Baltimore, has been reappointed a member of the Maryland State Board of Registration for Engineers and Land Surveyors. The board, created last year, is made up of five members named for terms ranging from one to five years, Baker's term being the first to expire.

MEN AT WORK

To operate last year all city-owned utilities of the city of Saskatoon, Sask. (pop. 45,000), including the waterworks, transportation, and electric utilities, at a net profit of $376,560 is the record of GEORGE D. ARCHIBALD *(left), city engineer. He is shown with* G. W. PARKINSON, *city design engineer.*

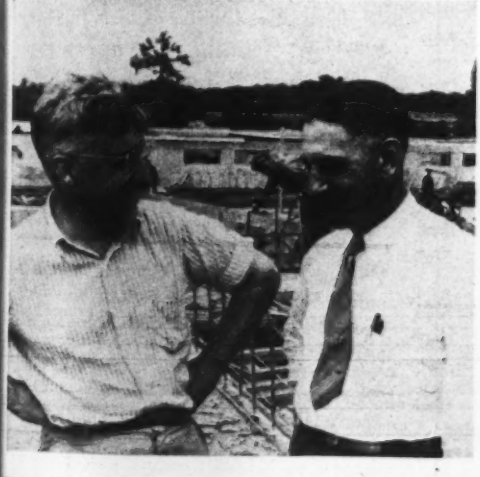
Hillyard Photo

H. F. BLOMQUIST, *superintendent of the Cedar Rapids, Ia., waterworks, asks* D. H. MAXWELL, *who has been with Alvord, Burdick & Howson, Chicago, more than 20 years, a tough question or one for the book. Maxwell was recently made a member of the Public Improvements Committee of the Chicago Association of Commerce. Blomquist's well-groomed waterworks is run as nearly like a separate utility as possible under existing statutes.*



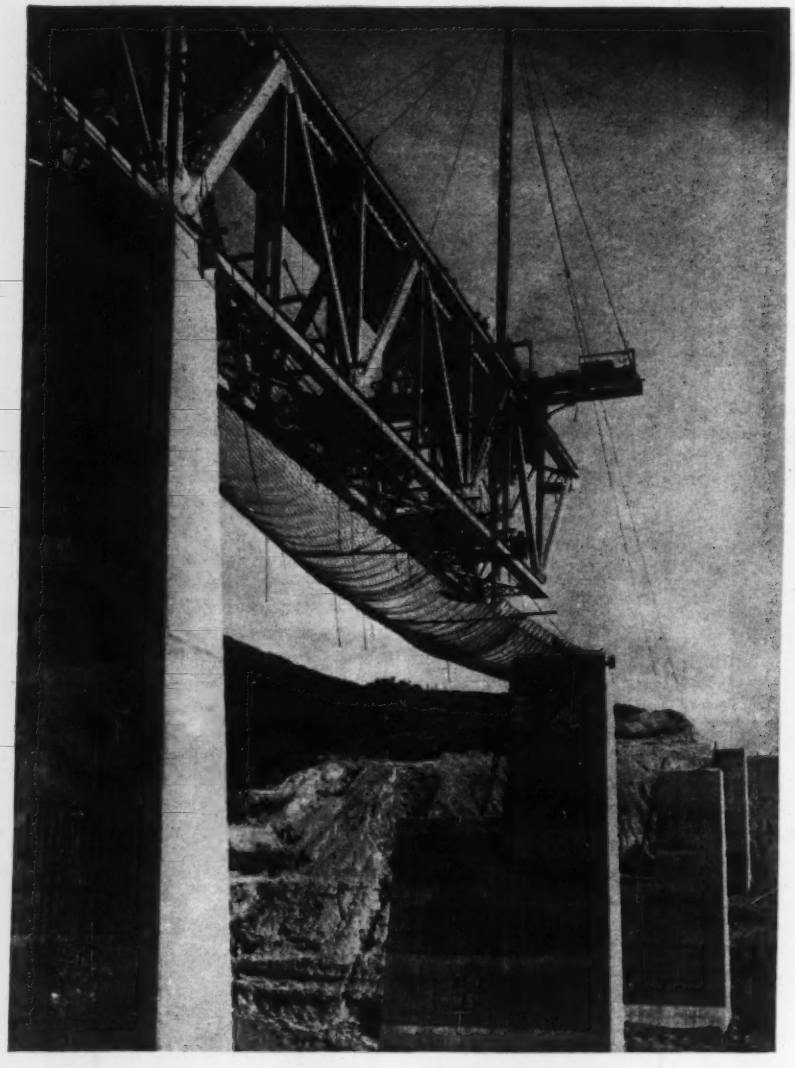
Always a booster for his home state is B. G. COY *(above), city engineer of Fort Collins, Colo. However, this pride is not due to never having been out of the Silver State, for Coy, following work in Honolulu, served as major during the World War with the 314th Engineers.*

San Francisco's clear water brings smiles for N. E. ECKHART *(below), general manager and chief engineer of San Francisco water department.*



Their job well advanced, FRANK BUSHEE *(above left) and* WILBUR GARTNER, *assistant engineers of the Cole Engineering Co., consultants of Ft. Wayne, Ind., supervising construction of Fort Wayne's new sewage treatment plant, now about two-thirds complete, are snapped on the job.*

Performance of a new 34E double drum paver on the Penn Turnpike accounts for the smile of FRED ROWE *(below left) of the W. L. Johnson Co., contractors of Hicksville, Ohio, as he talks with* D. P. LINGAFELD, *engineer on the $70,000,000 express highway for the Pennsylvania Turnpike Commission.*



Rope Safety Net Still Doing Duty

Originally used on San Francisco's Golden Gate Bridge (ENR, March 11, 1937), this rope safety net has served the contractor, Bethlehem Steel Co. again on the second Sacramento River crossing of the relocated Southern Pacific around Shasta Dam reservoir. Still another part of the net has been used on a Los Angeles bridge job described in the issue of March 28, 1940, p. 466. Here the net is shown stretched across the 200-ft. mid-channel span of the bridge over the Sacramento River.

The reason for the curious shoulder on the piers is to permit future widening of the bridge without requiring foundation construction beneath the water of the reservoir.

The derrick shown in this picture is the one which was subsequently wrecked in an accident described in Engineering News-Record, June 6, 1940, p. 773.

MEETINGS

AMERICAN SOCIETY OF CIVIL ENGINEERS, annual convention, Denver, Colo., July 24-26.

REGION AND LOCAL

CAROLINAS BRANCH, Associated General Contractors of America, summer convention, Myrtle Beach, S. C., July 12-13.

MISSISSIPPI SOCIETY OF PROFESSIONAL ENGINEERS, summer convention, Biloxi, July 15-16.

ELECTIONS AND ACTIVITIES

EDWARD NELSON, chief engineer of the Northwestern Utilities, Ltd., Edmonton, Alta., recently was elected chairman of the Edmonton Branch of the Engineering Institute of Canada.

JOHN H. GRANT has been chosen president of the Fargo, N. D., Engineers' Club. Edward D. Petrick was chosen vice president, W. H. Plath, secretary-treasurer, and Ben McCamy, director.

THE NORTH DAKOTA SOCIETY of Engineers has been organized with A. C. Burr, of Jamestown College, as president. H. L. Rush, North Dakota Agricultural College, was chosen vice president; Lloyd F. Clark, state highway engineer of Bismarck, secretary-treasurer. Speakers at the organizing meeting included E. L. Lium, consulting engineer of Grand Forks; Z. E. Sevison, highway engineer, North Dakota State Highway Department, and W. B. Tarbell, city engineer of Fargo.

CHARLES M. WARE is the new president of the Utah Society of Professional Engineers, succeeding Ellis W. Barker, being elected at the society's annual convention last month. Carl H. Christensen was named first vice president and Dwight L. Simpson second vice president., Ralf Rumel Woolley, secretary since 1925, was re-elected, as was R. K. Brown, treasurer since 1920. Lafayette Hanchett, chairman of the board of the Utah Power and Light Co., was the principal speaker.

WILLIAM H. BEHRENS, Cedar Rapids, Iowa, has been elected head of the Iowa County Officers Association to succeed O. C. Thompson, West Union.

ENGINEERING CONFERENCES

TRAFFIC ENGINEERING: University of Texas, Austin, Tex., July 15-20.

SECOND NATIONAL SURVEYORS TEACHERS' CONFERENCE: Camp Case, Mohican Forest Park, Loudonville, Ohio, July 30-August 8.

SOIL MECHANICS AND ITS APPLICATION: Purdue University, West Lafayette, Ind., Sept. 2-6.

CIVIL SERVICE EXAMINATIONS

UNITED STATES CIVIL SERVICE COMMISSION: Senior engineer, $4,600; engineer, $3,800; associate engineer, $3,200; assistant engineer, $2,600; chief engineering draftsman, $2,600; principal engineering draftsman, $2,300; senior engineering draftsman, $2,000; engineering draftsman, $1,800; assistant engineering draftsman, $1,620; senior inspector of engineering materials, $2,600; inspector of engineering materials, $2,000; junior inspector of engineering materials, $1,800; senior engineering aide, $2,000. Deadline for filing of applications varies; for details see local post office.

How federal money will be spent for construction

(Fiscal year 1941)

Non-military appropriations	
Public Buildings Administration	$20,250,000
Public Roads Administration	140,990,000
amount not important; merely meets obligations previously incurred	
Indian roads	2,000,000
Park roads and trails	2,125,000
	* 3,000,000
Parkways	2,000,000
	* 6,000,000
Forest roads	9,000,000
Reclamation	60,822,000
Indian irrigation	2,572,000
Tennessee Valley Authority	40,000,000
River and harbor maintenance	43,065,000
River and harbor construction	24,300,000
Flood Control—general	70,000,000
Mississippi	30,000,000
Sacramento	1,242,000
Emergency	800,000
Fort Peck power plant	2,000,000
Bonneville power plant	3,400,000
Advisory Committee for aeronautics laboratory	5,200,000
Rural Electrification Administration	40,000,000
(consists of authority to borrow from RFC)	
International Boundary Commission (Mexico)	1,450,000
Panama Canal locks	15,000,000
	* 99,000,000
	624,216,000
Military appropriations	
(pending legislation will substantially increase these amounts)	
Military posts	$164,633,000
Barracks and quarters	26,635,000
Seacoast defenses	13,458,000
Naval public works	205,413,000
River and harbor improvement	8,127,000
Advisory Committee for aeronautics	3,200,000
	*8,400,000
Enlarge Army and Navy Buildings	1,605,000
Plant construction	
$400,000,000 is available under the general heading of expediting production of military supplies. Some part—certainly less than half—will be used for building construction. Small amounts appropriated for ordnance, ships, etc. may also go for construction of production facilities.	

NOTE.—* indicates contract authorization instead of cash.

• • •

North Dakota halts highway fund diversion

Citizens of North Dakota last month voted to end further diversion of highway funds when they passed an anti-diversion constitutional amendment. This makes a total of eight the states that have adopted such amendments. Three other states, Idaho, Nevada and South Dakota, will vote this year on similar amendments.

Christianson-Leberman

Appointed state highway engineer of Texas

DeWitt C. Greer has been named state highway engineer for the Texas State Highway Department to succeed Julian Montgomery, who has resigned because of ill health. Greer, who was promoted from the post of chief of construction and design, graduated from Texas A. & M. College with a civil engineering degree in 1923. He worked for a time with the Texas state parks board, and was at one time city engineer of Athens, Tex. From 1930 to 1936 he served as division engineer, going to Austin as chief of the design and construction division in 1936. Montgomery, who has been state highway engineer for the past three years, has been absent from work for several weeks because of illness. Prior to becoming state engineer, he served as state director of Texas for the Public Works Administration. P. H. Webb, assistant highway engineer, has been mentioned as taking over Greer's old work, but no official appointment has been made.

• • •

Contractor fined for polluting stream

A fine of $100 and costs has been imposed on the Larda Corp., Sedalia, Mo., contractor engaged in timber clearing in the Grand River dam area, because a company spokesman pleaded guilty to a charge of contaminating water in Hudson Creek near Vinita and Fairland, Okla. A misdemeanor charge was filed by county officials, who claimed foliage laden trees left by the timber-clearing crew had resulted in contamination of the creek water and the killing of many fish. It was pointed out that green foliage left in the water undergoes a chemical reaction that creates an organic acid fatal to fish.

Waterworks manufacturers add sewage division

Extension of the activities and interests of the Water Works Manufacturers' Association to include makers and suppliers of sewage disposal equipment became a fact on June 28 when the results of a membership mail ballot were announced. With 90 per cent of the votes favoring the new set-up, the executive committee of the association declared that a new constitution was in effect. Heretofore, sewage works manufacturers were not organized on a national basis.

The new group, known as the Water and Sewage Works Manufacturers' Association, has four classes of membership. According to William J. Orchard, general manager of Wallace & Tiernan Co., Inc., and chairman of the committee for reorganization, the memberships are: Class A—for those engaged in both waterworks and sewage works activities; Class W—for those engaged in waterworks activities; Class S—for those engaged in sewage works activities; and Class B—for a limited sectional membership.

There will be two divisions of the association, a waterworks division made up of Class A and Class W members, and a sewage works division made up of Class A and Class S members.

• • •

Southern roads damaged by army maneuvers

The recent extensive army maneuvers in Louisiana and East Texas raised question as to how the roads withstood the pounding of heavy mechanized military equipment. According to Harry B. Henderlite, state highway engineer of Louisiana, "roads surfaced with concrete pavement were not materially injured by concentration of various types of army vehicles. There was one road constructed of a three-application surface treatment on six-inch gravel base, about forty miles long, which was injured to an extent of about sixty or sixty-five thousand dollars. The road surface was only in a fair condition during the maneuvers but it is believed that even if the surface had been recently constructed it would have been rather heavily damaged. Various gravel roads were rutted and injured but the expense of reconditioning was not very heavy."

Extensive road failure, due to maneuvering of heavy motorized military equipment also resulted in East Texas, according to report by the Highway Information Service, Washington, D. C. Telling of the secondary road system, Highway Information Service states, "These insufficient roads crumbled under the weight of comparatively light equipment. Such highway inadequacy is alarming."

OBITUARY

RICHARD G. WAGNER, 78, retired structural engineer, died in Miami Beach, Fla., June 28. Wagner, a civil engineering graduate of Rensselaer Polytechnic Institute, early in life was associated with the J. G. Wagner Architectural Iron Works, Milwaukee, which was later acquired by the American Bridge Co.

ROBERT P. DURHAM, 60, president of the Macdonald Engineering Co., Chicago, died July 7 in that city. Durham, who built grain elevators in many parts of the world, in 1929-30 was in charge of erecting a chain of cement plants, grain elevators, flour mills and other industrial plants in the Soviet Union at a cost of $100,000,000.

FRED SKRAINKA, 81, former member of the Skrainka-Vietz Construction Co., which as forerunner of the Skrainka Construction Co. built the Eads Bridge, died last week in New York City.

HARRY C. GASSAWAY, 67, president of Gassaway & Owen, construction firm of Winston-Salem, N. C., was killed in an automobile accident near Winston-Salem June 29.

FRANK H. HOSS, 57, superintendent of road construction in Marion County, Ind., died June 29 in Indianapolis, Ind.

HENRY A. K. DRURY, 70, former assistant chief engineer of the Board of Railway Commissioners of Canada with headquarters at Ottawa, died in that city July 1.

THEODOR S. OXHOLM, 73, who retired in 1933 after ten years as consulting engineer for the Borough of Richmond of New York, died in that city July 1.

C. ALEXANDER LOW, 76, head of C. A. Low & Co., general contractors of Ottawa, Ont., died in that city last month.

PAUL E. PARENT, civil engineer and for 40 years chief engineer of the marine department of the Dominion Government of Canada, died last month at his home in Ottawa.

HARRY D. FOWLER, 57, civil engineer employed by the Arkansas Natural Gas Co., since 1919, died July 5 at Shreveport, La.

CHESTER LUDBERG, 34, manager of the road and bridge division of the Colonial Construction Co., Spokane, Wash., died July 2 at Portland, Ore.

WALTER W. CURTIS, 77, civil engineering graduate of Dartmouth College who early in life served as resident bridge engineer for the Santa Fe R. R., died June 29 in Denver. From 1888 to 1913 he practiced in St. Paul and Chicago, specializing in waterworks, bridges, and wood preservation. Later he transferred his activities to Denver.

WILLIAM H. FINLAY, civil engineer and president of the William M. Finlay & Sons Co., died July 1 in Cleveland.

GEORGE F. STAAL, 71, former city engineer at Milwaukee, died July 5 in Milwaukee. Appointed city engineer in 1914, Staal was twice reappointed.

CHARLES LATHAM, 59, civil engineer and president from 1909 to 1926 of Latham & Walters, general contracting company, Indianapolis, died July 3 in that city. Later he organized Charles Latham Building Co., retiring in 1938.

THOMAS G. HOLTON, 64, president for 25 years of the T. G. Holton Co., sewer contractors of Milwaukee, died June 30 in that city.

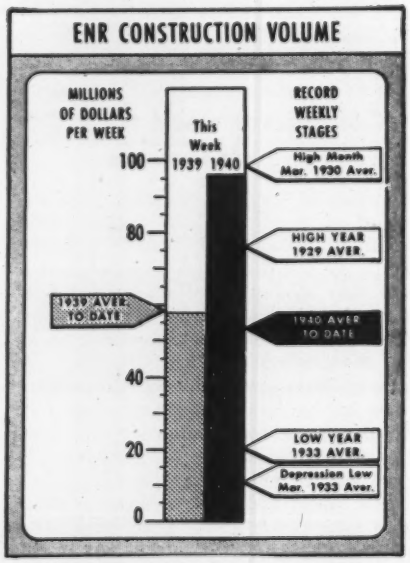
PERCY LITCHFIELD, 63, consultant on the East River Drive in New York City, died in Manhattan last week. He once served as president of the Litchfield Construction Co., New York subway builders.

CONTRACTS AND CAPITAL

ENGINEERING CONSTRUCTION awards for this week, at $98,039,000, reached the highest level this year, exceeding the previous high week of June 20 of $96,286,000. The $16,175,000 for shipbuilding docks at the Philadelphia, Pa., and Norfolk, Va., navy yards and two hydroelectric projects estimated to cost $12,500,000 for the Nantahala Power & Light Co. of Franklin, N. C., account for a large part of this record. Contract awards topped the corresponding week last year by 69 per cent and the preceding week this year by 210 per cent. Private construction is 99 per cent above a year ago and 330 per cent above a week ago, while public construction gained 57 per cent over last year and 170 per cent over last week.

The current week's construction brings the 1940 volume to $1,519,254,000, 8 per cent below that of a year ago. Private awards for the 28-week period at $526,149,000 are 26 per cent above a year ago, while public construction at $993,105,000 is 20 per cent lower. Federal awards for this period total $246,841,000, a gain of 48 per cent. All classes of construction exceeded last week's volume with the exception of bridges. Subtotals for the week in each class of construction are: waterworks, $3,738,000; sewerage, $2,274,000; bridges, $2,194,000; industrial buildings, $9,240,000; commercial buildings, $9,019,000; public buildings, $8,002,000; earthwork and drainage, $10,348,000; streets and roads, $16,466,000; unclassified, $36,758,000.

New capital for construction for the week totals $834,632,000. It is made up of $5,806,000 in state and municipal bonds and $776,572,000 in federal funds for non-military appropriations. This brings the total for the 28-week period to $1,621,334,000.



CONTRACTS

(Thousands of dollars)

	Week Ending July 13 1939	July 4 1940	July 11 1940
Federal	$7,811	$2,588	$28,822
State & Municipal	33,065	21,118	35,206
Total public	$40,876	$23,706	$64,027
Total private	17,127	7,893	34,012
TOTALS	$58,003	$31,599	$98,039

Cumulative

1940	(28 weeks)	$1,519,254
1939	(28 weeks)	$1,658,776

Note: Minimum size projects included are: Waterworks and waterways projects, $15,000; other public works, $25,000; industrial building, $40,000; other buildings, $150,000.

NEW PRODUCTIVE CAPITAL

	Cumulative 1939 28 Wks.	1940 28 Wks.
NON-FEDERAL	$833,336	$844,782
Corp. Securities	134,305	92,225
State & Mun.	331,361	467,348
R.E.A. loans	83,732	
U.S.H.A. loans	146,419	87,204
R.F.C. loans	2,519	6,985
Fed. Aid-Hwy.	135,000	184,000
FEDERAL	$820,527	$783,572
TOTAL CAPITAL	$1,653,863	$1,621,334

FHA MORTGAGES

	Week Ending July 6 1939	June 29 1940	July 6 1940
Selected for appraisal	$15,328	$27,464	$22,000*

Cumulative

1940	(27 weeks)	$657,737*
1939	(27 weeks)	$616,681

* Subject to revision.

ENR INDEX NUMBERS

		1913	1926
Index Base = 100			
Construction Cost	July '40	242.15	116.40
Building Cost	July '40	291.68	109.02
Volume	June '40	225.	99

CONTRACT UNIT PRICES

What contractors are bidding on different kinds of construction work

MILL RIVER CONDUIT MASSACHUSETTS

OWNER: U. S. Engineer Office, Providence, R. I.; Lt. Col. G. S. Bragdon, engineer.

PROJECT: Construction of concrete inlet wall 240 ft. long, concrete conduit 1,100 ft. long, concrete snow dump 210 ft. long, and a concrete flood wall 220 ft. long, along Mill River, Springfield, Mass., from its confluence with the Connecticut River to the Bay State Thread Co. Dam. Project is for local flood protection.

CONDITIONS: Contractor to furnish all materials and complete work in 240 calendar days. Rail and highway transportation facilities available. Wage rates are: skilled labor, $1.00 to $1.65 per hr.; semi-skilled, 62½ to 87½c. per hr.; and common labor, 56c. per hr.

BIDS: Seventeen bids were opened Mar. 1, 1940, ranging from the contract low of $226,152 to $372,290. Engineers estimate $277,897.

LIST OF BIDDERS:

1. F. H. McGraw & Co., Hartford, Conn. (contract) $226,152
2. Coleman Bros. Corp., Boston, Mass. 248,038
3. Vulcan Constr. Co., Boston, Mass. 251,804
4. J. F. Fitzgerald Constr. Co., Boston, Mass. 264,895
5. J. T. McCarthy Co., Davenport, Iowa 273,945
6. David W. Johnson, Inc., Newark, N. J. 277,418
7. Tuller Constr. Co., Red Bank, N. J. 278,406
8. V. Barletta Co., Roslindale, Mass. 289,075
9. Edward M. Matz, Inc., Boston, Mass. 296,231
10. Clevorock, Inc., New York, N. Y. 317,953
11. Thompson Constr. Corp., Albany, N. Y. 333,209
12. Blakeslee Rollins Corp., Boston, Mass. 340,804
13. Kuchar Brothers, Montvale, N. J. 342,182
14. Deliso Constr. Co., Inc., Jamaica, N. Y. 344,270
15. Senior & Palmer, Inc., New York, N. Y. 368,261
16. A. Baruffaldi Co., Somerville, Mass. 369,381
17. Daniel O'Connell's Sons, Inc., Holyoke, Mass. 372,290

Item	Quan.	Unit Prices (1)	(2)	(3)
1. Prepare site	2 ac.	$500.00	$250.00	$500.00
2. Control and divert water, sewage	L. S.	4,000.00	12,500.00	11,000.00
3. Common excav., general	20,000 c.y.	.33	.75	1.50
4. Common excav., borrow	16,200 c.y.	.30	.38	.10
5. Rock excavation	2,000 c.y.	3.00	2.85	5.00
6. Remove brick, structures	40 c.y.	2.00	5.00	1.50
7. Remove stone masonry, struct.	20 c.y.	4.00	5.00	1.50
8. Remove concrete, structures	310 c.y.	5.00	5.00	15.00
9. Remove granite curb	80 l.f.	.40	.50	.20
10. Remove macadam paving	5 c.y.	1.20	5.00	2.00
11. Steel sheet piling	3,920 s.f.	1.70	.90	1.00
12. Timber sheet piling	7,700 s.f.	.70	.50	.20
13. Timber piling	9,280 l.f.	.80	.50	1.00
14. Screened gravel	270 c.y.	3.00	2.50	5.00
15. Compacted backfill	30,000 c.y.	.20	.25	.10
16. Semi-compacted backfill	1,500 c.y.	.12	.25	.10
17. Riprap, hand placed	100 c.y.	8.00	4.00	4.00
18. Riprap, derrick stone	200 c.y.	10.00	4.00	7.00
19. Grouted stone gutters	40 s.y.	5.00	3.00	3.00
20. 12-in. vit. clay pipe, mortar joints	1,041 l.f.	.90	1.00	1.50
21. 12-in. vit. clay pipe, open joints	200 l.f.	.85	.90	1.00
22. 15-in. vit. clay pipe, mortar joints	320 l.f.	1.20	1.50	1.80
23. 15-in. vit. clay pipe, open joints	20 l.f.	1.15	1.40	1.30
24. 18-in. vit clay pipe	250 l.f.	2.00	2.00	3.00
25. 12-in. cast iron pipe	14 5 l.f.	7.00	5.00	10.00
26. 12-in. gate valve	1 ea.	80.00	100.00	150.00
27. Cement	10,230 bbl.	2.80	2.40	3.00
28. Conc.; walls and snow dump bridge	2,200 c.y.	12.00	15.00	10.00
29. Conc.; in conduit	4,300 c.y.	10.50	13.00	10.00
30. Conc.; railroad bridge lining	190 c.y.	16.00	38.00	15.00
31. Conc.; snow dump floor misc. struct.	1,000 c.y.	7.00	10.00	10.00
32. Reinforcing steel	1,110,000 lb.	.045	.04	.045
33. Fabr. struct. steel	8,200 lb.	.15	.13	.25
34. Misc. struct. steel	17,000 lb.	.08	.10	.15
35. Misc. iron and steel	13,400 lb.	.13	.10	.15
36. Copper water stops	2,500 lb.	1.20	.50	.60
37. Topsoil	150 c.y.	3.00	1.50	1.00
38. Sodding and seeding	0 1 ac.	150.00	500.00	2,500.00
39. Gravel for roads	180 c.y.	3.00	2.50	5.00
40. Bitum. macadam road surf.	270 s.y.	3.00	1.50	1.00
41. Granite curb	60 l.f.	3.00	1.50	.35
42. Manholes	11 ea.	70.00	30.00	60.00

OUTLET WORKS YOUNGHIOGHENY DAM, PA.

OWNER: U. S. Engineer Office, Pittsburgh, Pa.; Col. W. E. R. Covell, District Engineer.

PROJECT: Construction of outlet works, control shaft and tower of Youghiogheny Dam on the Youghiogheny River about one mile south of Confluence, Pa. Work involves excavation of portals and tunnel; concrete work in portals and tunnel; excavation and concrete work in control shaft; stone paving at tunnel entrance; construction of control tower; and installation of equipment furnished by the government.

CONDITIONS: Government to furnish roof and floor conduit liner plates; pier nose plates; conduit lining; service and emergency sluice gate frames and rails; sluice gates; eye bar hoisting chain and dogging devices; sluice gate hoisting machines; hand operated building crane; stand-by unit complete; main power switchboard; water supply pump and accessories; and sluice gate transfer car. Contractor to furnish all other materials. Rail, highway and water transportation facilities available. Wage rates are: skilled labor, $1.40 per hr.; semi-skilled, 85c.; and common, 55c. per hr. Project to be completed in 630 calendar days.

BIDS: Twenty-one bids were opened May 8, 1940, ranging from the contract low of $757,415 to $1,394,863. Engineer's estimate, $816,523.

LIST OF BIDDERS:

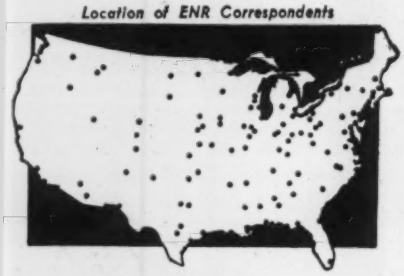
1. Herman Holmes, Crystal Falls, Mich. (contract) $757,415
2. Al Johnson Constr. Co., Minneapolis, Minn. 759,378
3. Kaufman Constr. Co., Philadelphia, Pa. 767,135
4. Mike Mannella, Pittsburgh, Pa. 789,720
5. Booth & Flinn Co., Pittsburgh, Pa. 789,992
6. Morrison-Knudsen Co., Inc., Boise, Idaho 797,354
7. United Constr. Co., Grand Rapids, Mich. 871,363
8. Geo. M. Brewster & Son, Inc., Bogota, N. J. 886,507
9. Silas Mason Co., New York, N. Y. 892,850
10. The Kalill Co., Cleveland, Ohio 895,150
11. Del Balso Constr. Corp., New York, N. Y. 895,841
12. Leo Butler Co., Silver Springs, Md. 912,052
13. Floyd Shofner, Los Angeles, Calif. 937,068
14. John F. Casey Co., Pittsburgh, Pa. 940,015
15. George Vang, Inc., Pittsburgh, Pa. 949,990
16. Marsch Constr. Co., Chicago, Ill. 951,781
17. Dravo Corp., Pittsburgh, Pa. 986,758
18. The Arundel Corp., Baltimore, Md. 1,033,576
19. Lombardi Co., Inc., Philadelphia, Pa. 1,062,533
20. Spencer, White & Prentis, Inc., New York, N. Y. 1,071,825
21. Walsh Constr. Co., Long Island City, N. Y. 1,394,863

Item	Quan.	Unit Prices (1)	(2)	(3)
1. Common excavation	68,000 c. y.	$0.50	$0.70	$0.50
2. Rock excavation	7,500 c. y.	1.25	2.60	.70
3. Spec. rock excavation	1,080 c. y.	12.00	5.00	5.00
4. Tunnel and shaft excav	31,000 c. y.	7.50	7.00	7.80
5. Brace and timber tunnel, steel rib	1,410,000 lb.	.065	.075	.07
6. Rock treatment (1 coat)	115 sq.	10.00	3.50	5.00
7. Fill	7,800 c. y.	1.00	1.50	.50
8. Rock paving	1,400 s. y.	10.00	5.00	4.00
9. Drill grout holes; rock or conc	480 l. f.	4.00	4.00	2.00
10. Drill fdn. anchor holes, rock	235 l. f.	1.00	1.00	2.00
11. Curtain grouting (cement)	960 sacks	2.00	1.00	3.00
12. Furnish cement	25,000 bbl.	2.40	2.10	2.30
13. Reinforcing steel	540,000 lb.	.04	.045	.04
14. Conc., intake and tunnel outlet	5,100 c. y.	12.00	10.00	12.00
15. Conc., tunnel lining and control shaft	13,700 c. y.	10.40	10.00	12.00
16. Concrete, control tower	1,400 c. y.	17.00	25.00	20.00
17. Control tower	L.S.	22,250.00	20,000.00	14,700.00
18. Inst. equip. furn. by government	440,000 lb.	.025	.02	.02
19. Miscellaneous metal	126,000 lb.	.05	.09	.08
20. Black steel pipe	4,600 lb.	.10	.20	.15
21. Cast iron (spec. analysis)	3,200 lb.	.20	.25	.15
22. Welding (corr. resist. steel rod)	50 c. in.	2.00	3.00	2.00
23. Welding (str. steel rod)	50 c. in.	1.50	2.00	1.00

CONSTRUCTION REPORTS

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York
ELSIE EAVES, Manager *SCOTT McLEOD, Statistician*
(Daily service also available—Write for details)

Location of ENR Correspondents



Symbols and Abbreviations Include:

† Federal Government
★ Project of $500,000 or over
ENR Engineering News-Record
CD Engineering News-Record Construction Daily

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger; water supply, earthwork, waterworks, $15,000; other public works, $25,000; industrial buildings, $40,000; other buildings, $150,000.

Classes of Construction
(Named in order of Listing)

Water Supply	Unclassified
Sewers, Waste Disposal	Latin America
Bridges, Grade Cross'gs	Public Buildings
Streets & Roads	Commercial Buildings
Earthwork, Waterways	Industrial Buildings

Stages Reported

PROPOSED: except Streets & Roads): BIDS ASKED (new announcements only. For full calendar, see also preceding issues of ENR); LOW BIDDERS: All low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published. CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

WATER SUPPLY

PROPOSED WORK

Calif., San Rafael—Marin Municipal Water Dist. San Rafael, completing plans enlarging Alpine Dam. Over $25,000.

†Calif., Woodland—U. S. Eng., 208 Post Office Bldg., Sacramento, completing specifications, boring well, furnishing, installing casing at Dunham Ranch, Inv. 1105-41-3.

Colo., Cortez—Reservoir. $43,000. Applied to WPA.

Fla., Clearwater—Comrs. Pinellas Co., extending WW sys. $268,000. RFC loan received. S. K. Keller, c/o owner, in charge. CD 5/23—ENR 5/30.

Fla., Clearwater—Comrs. Pinellas Co., Clearwater, exten. water facilities, Gulf Beach Water Dist., near St. Petersburg. Over $100,000. S. K. Keller, c/o owner, engr.

Fla., West Palm Beach—Watermains, laterals, etc. for Southridge Housing Project. Over $15,000.

Ill., Loda—WW and distr sys. $40,000.

Ill., St. Joseph—$37,000 bond election July 16, WW and dist sys.

Ia., Arcadia—Approved $54,850 bonds, w.w. imprvs.

La., Simmesport—Complete WW distr. sys., hydrants, valves, elevated tank and tower, deep well pump, etc. $37,729. WPA. M. M. Merrick, Marksville, engr.

★**†Mass., Colrain**—U. S. Eng., 819 Industrial Trust Bldg., Providence, R. I., reservoir at Fort Morrison, near here. $2,250,000.

Mass., Newbury—W. Plummer, chn. Water Com., Town Hall, 5 mi. c.i. watermains. $75,000. Whitman & Howard, 89 Broad St., Boston, engrs.

N. J., Beachwood—23,408 ft. 4 to 8 in. c.i. water mains, various srteets north of railroad. $56,050. WPA. W. D. Cougle, 1102 S. Broad St., Trenton, owner's and WPA engr.

N. C., Knightdale—Voted $15,000 bonds, water sys. and $10,000 bonds, sewerage sys.

N. C., Monteo—L. D. Tarkington, mayor, voted $37,000 bonds modern water sys. and sewage disposal plant. Total $137,200.

★**Pa., Phila.**—Bids soon, pump. station Torresdale. 1st unit $18,000,000 water program. CD 4/25—ENR 5/2.

Pa., Pittsburgh—Purchasing motor for Ross Pump. Sta., new motor and necessary repairs to high pressure steam turbine for 100 MGD pump. unit at Ross Pump. Sta. J. J. Croak, city engr.

★**†S. C., Charleston**—Con. Q.M., Fort Moultrie, new WW, 6 in. main to tap Mount Pleasant, WW running under Cove Inlet drawbridge. $500,000.

Tex., Abilene—W. H. Hair, mayor, bids soon filtration plant, coagulation and sedimentation basins, new pump station, chemical headhouse, main connections to waterlines, $60,000. Freese & Nichols, Capps Bldg., Fort Worth, engrs.

Tex., Beaumont—G. W. Morgan, mayor, R. Edmonds, city mgr., retained A. C. Moore & Co., consult. engrs., 2404 Smith-Young Tower, San Antonio, to prepare plans rehabilitation municipal W/W sys.

Tex., Gladewater—J. M. McFarland, mayor, imprv. existing WW sys., new c.i. distr. lines, pump. unit, $70,000. A. C. Moore & Co., 2404-07 Smith Young Tower Bldg., San Antonio, engrs.

Wash., Bellingham—B. E. Hanning, mayor, industrial water-main from 72 in. Lake Whatcom tunnel. $200,000. J. Cunningham, Spalding Bldg., Portland, Ore., engr.

Wash., Woodland—26,000 ft. 6 to 10 in. pipe, pumphouse with pump and chlorinator. $55,173. WPA asked to allot $26,874.

Wis., LaValle—Watermains. $86,000. Applied for WPA funds, F. J. Davy & Son, LaCrosse, engrs.

Ont., Hamilton — Barton Twp., c/o A. Broughton, clk., County Bldg., exten. water and sewage sys. Mac Kay & Mac Kay, 25 Hughson St. S., engrs.

Ont., Uxbridge—Gore & Storrie, engrs., 1130 Bay St., Toronto, bids soon WW sys. exten. for Town. $35,000.

BIDS ASKED

Bids Asked July 15

N. Y., Elmira—Elmira Water Bd., furnishing, installing complete heating plant at filtration plant. Over $15,000. CD 6/28—ENR 7/4.

Bids Asked July 20

Fla., West Palm Beach—Housing Auth., West Palm Beach, elevated steel water tank, at site of housing project. Over $15,000. B. P. Kitchell & Assoc., Guaranty Bldg., engrs.

Utah, Soldier Summit—Pipe line from spring in White River bed to town, c.i. pipe, valves, fittings, etc. R. P. Anderson, Price, engr.

Bids Asked July 22

†Wash., Napavine—Bonneville Project, P. O. Box 3537, Portland, Ore., deep well, turbine-type pump. unit, Inv. 1187.

Bids Asked July 25

Mass., Boston—At office Metropolitan Dist. Water Supply Comn., 20 Somerset St., R. N. Molt, secy., Contr. 113, making core borings in Middlesex, Norfolk and Suffolk counties. (K. R. Kennison, c/o owner, ch. engr.); adv. ENR. 7/11.

Bids Asked July 29

Tex., Alvord—W. Jones, mayor, well, elevated tank and distr. sys. $45,000. Tentative date. Freese & Nichols, Capps Bldg., Fort Worth, engrs.

Bids Asked

Pa., Lock Haven—C. E. Herr, mayor, purchasing, installing chlorinator units at WW. Over $15,000. CD 6/21—ENR 6/27.

LOW BIDDERS

Calif., Los Angeles—Dpt. Water & Power, 207 S. Bway., July 3, addns. and imprvs. to Upper and Lower San Fernando Reservoirs, Spec. 3451, from C. W. Wood, 208 W. 8 St., Sched. A, alternate. $343,147. CD 6/26.

Fla., Pahokee—J. Dulany, mayor, City Hall, June 28, WW intake line exten. and new concrete intake crib, from Murphy Constr. Co., Clare Ave., West Palm Beach. Est. $15,000. CD 6/18—ENR 6/20.

Wis., Milwaukee—Milwaukee Co. Park Comn., July 2, drilling, furnishing well in Washington Park, from J. Egerer, 101 N. 3 St., $24,971.

CONTRACTS AWARDED

★**Calif., Los Angeles**—Metropolitan Water Dist., 306 W. 3 St., constructing portion 5.8 mi. Burbank Santa Monica Pipe line, Schedule 31, to United Concrete Pipe Corp., 1347 W. 208 St., **$514,940,** est. approx. $500,000; 4.8 mi., Schedule 32, and 5.4 mi. Schedule 33, to Artukovich Bros., 7320 N. Atlantic Ave., Hynes (Los Angeles Co.), **$760,807.** Est. approx. $800,000. Grand total $1,275,746. Bids 6/25, awarded 6/28. CD 6/11—ENR 6/13.

Conn., Hartford—Bd. Contr. & Supply, Metropolitan Dist., R. Dillon, clk., Executive Office Municipal Bldg., 550 Main St., 4 one-half acre covered filter beds, connecting pipe lines, sewers, etc. to F. H. McGraw & Co., 780 Windsor St., Hartford. Est. over $15,000. Bids 6/3. CD 5/7—ENR 5/9.

†Fla., Bay Pines—Veterans Administration, Arlington Bldg., Wash., D. C., pumphouse and irrigation sys. at veterans facility. **WPA. $58,733.**

★**Ia., Des Moines**—Des Moines Water Works, 10 and Locust Sts., D. L. Maffitt, genl. mgr., reservoir and pump. plant for reduction iron content of water, imprv. water collecting sys., new main extensions. **WPA. $850,000.**

Ia., What Cheer—WW sys. **WPA. $40,000.** Bonds voted. CD 7/2.

Kan., Coffeyville—A. P. Irvin, city clk., water reservoir, new pump. unit, water distr. line from pump. station to filter plant, to P. P. Young, 4209 St. Joseph Ave., St. Joseph, Mo. **$56,669.** E. L. Brown, city engr. CD 6/24.

Kan., Tecumseh Twp (RFD Topeka)—Tecumseh Twp., S. H. Hennessey, chn., RFD Topeka, WW sys., mains, steel tank. **WPA. $32,000.**

Mass., Charlton—W. F. McCracken, chn. Special Comn., Town Hall, driven wells, 150,000 gal. steel standpipe, 1 mi. 8 in. pipe, hydrants, etc. **WPA. $90,000.** H. E. Bailey, 177 State St., Boston, engr. CD 4/19—ENR 4/25.

Mass., Haverhill—Water Dpt., G. J. Cote, in charge, City Hall, reservoir, earth and concrete dam, c.i. pipe line, etc., Bradley Brook and Ayers Village, day labor. **$52,000.** Metcalf & Eddy, 1300 Statler Bldg., Boston, consult. engrs. CD 5/8—ENR 5/16.

Mass., Lynnfield—Lynnfield Center Water Dist., 450,000 gal. steel standpipe, to Bethlehem Steel Co., E. 3 St., Bethlehem, Pa. **$17,605.** CD 6/24—ENR 6/27.

Neb., Omaha—Metropolitan Utilities Dist., 18 and Harney Sts., new watermains Dists. 1608, 1623 and 1624; gas mains, Dists. 885 and 888, own labor. **$20,000.**

N. J., Camden—Camden Co., driving wells, own forces. Over **$15,000.**

N. J., Gloucester City—C.i. watermains various streets, **WPA $47,480.** F. Lee Smith, 3 and Arch Sts., Camden, WPA and owner's engr.

N. J., Pennsgrove—Lower Penns Neck Twp. Pennsgrove, c.i. watermains, hydrants, relaying varicus streets, **WPA. $73,018.** F. Lee Smith, 3 and Arch Sts., Camden, WPA and owner's engr.

N. Y., Harrison—Village, c.i. watermains, hydrants, valves. **WPA** over **$30,000.** C. W. Post, Old P. O. Bldg., Albany, ch. engr.

N. Y., Sharon Springs—S. B. Smith, mayor, water softener plant, to Hameline Co. Inc., 529 W. Oriskany St., Utica. Est. **$15,000.** CD 6/10—ENR 6/13.

N. C., Liberty—Imprv. water and sewer facilities. **WPA. $42,194.** Est. $70,000.

Wis., Appleton—Water Comn., 1 m.g. rein.-con. clear well, to Zachek Constr. Co., Denmark. **$27,200,** Orbison & Orbison, Appleton, engrs. Bids 6/19.

Ont., Toronto—Surge tank and connection, Queen St. W., to Goldie Constr. Co., Ltd., 137 Wellington St. W. **$55,548.** R. C. Harris, c/o city, engr.

Que., Lachine—550 ft. 36 in. water pipe in Lake St. Louis, day labor. CD 5/23—ENR 5/30.

SEWERS, WASTE DISPOSAL

PROPOSED WORK

Calif., Sunol—Residents in west area of city voted to form district to establish sanitary sewerage district to construct sanitary sewerage sys. $61,000. CD 5/22—ENR 5/30.

Calif., Ukiah — Made plans constructing 1,380 ft. 6 in. vitr. clay or concrete sewers, manholes.

Ia., Keosauqua—V. Blasky, city clk., sewage plant and sewerage sys. $50,000-$55,000. Will apply to WPA Consoer, Townsend & Quinlan, 211 W. Wacker Dr., Chicago, Ill., engrs. CD 1/31—ENR 2/8.